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Army Orders for  
March,  
1937*



T

# Small Arms Training

Volume I, Pamphlet No. 2

## Application of Fire 1937

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LONDON

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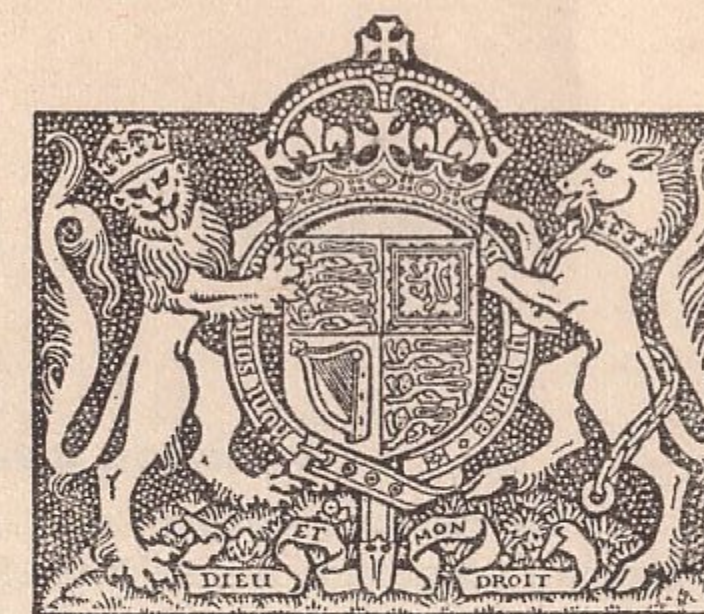
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By Command of the Army Council,

*H. J. Creedy*

THE WAR OFFICE,  
31st March, 1937.



## GENERAL

1. **Collective and individual fire.**—Targets may be engaged by collective or individual fire.

- i. **Collective fire** is the fire of the unit controlled by its leader. It is the most effective and economical method of fire and will be used whenever possible on service. It may be concentrated or distributed according to the type of target.
- ii. **Individual fire** will be used when, on account of battle conditions, control by the section leader is not possible. Every man will be trained to apply his fire to the best advantage in such circumstances. Individual fire will seldom be effective beyond 600 yards.

2. **Rates of fire.**—Since the ammunition carried by each man is limited and slow fire is more accurate, this rate will be the normal, rapid fire being used only when maximum volume or surprise effect is essential. Occasions for rapid fire may be the appearance of a vulnerable or fleeting target, when attacked at close quarters or to cover movement.

3. **Requirements for effective fire.**—The following are the requirements for the production of effective fire at the right time and place :—

- i. Fire unit commanders must have the tactical knowledge to select the targets and best moment for opening fire, and should be able to indicate the targets.
- ii. Those under their command should be able to recognize the targets.
- iii. All ranks must be trained to judge distance, and range-takers in machine gun units should reach a high standard of accuracy.
- iv. Good fire discipline should be combined with intelligent fire control.
- v. Accurate shooting.

4. **Training.**—Although in battle the above requirements are interdependent, each subject will be taught separately in the earlier stages of training. Whenever possible, the lessons in this pamphlet should be given in the open. If the lack of suitable ground, or the state of the weather, prevents this, landscape targets may be used, except for judging distance.

## SECTION 1.—VISUAL TRAINING

1. **Object.**—To develop the powers of observation.

The power of modern weapons has reduced the visibility of the enemy on the battlefield. Wide formations, camouflage and neutral tinted uniforms are now general, and advantage is taken of all available cover. Visual training, to find the enemy, is therefore of great importance.

2. **Methods of training.**—Exercises framed to stimulate the soldier's powers of observation will begin early in his training and continue throughout his service. They should include the study of ground, impressions of size, recognition of targets and ground features, and observation of fire as an individual on all types of ranges. Training will begin with questions framed to develop the recruit's powers of describing what he sees ; ordinary objects will be counted and figures of different colours will be placed sometimes in the open and sometimes under partial cover in front of various backgrounds. Men will be employed to show how movement catches the eye and discloses a firer's position. Blank ammunition will be used to give practice in locating an enemy by sound.

As progress is made, these exercises will be carried out under more difficult conditions, the observer lying down or watching from behind cover. Special attention will be given to recognizing features of ground such as fire positions, dead ground, etc.

N.C.Os. will be practised in the use of field-glasses. They will be required frequently to search ground and examine distant objects with and without the aid of glasses.

3. **The military vocabulary.**—Men will be familiarized with all terms applied to features of ground, colours, shapes and military objects generally, so that their powers of description and recognition may be improved. A specimen military vocabulary is appended ; it is intended as a guide to instructors. The terms should be introduced as opportunity offers during the soldier's service. It should be increased by teaching the local equivalent for, or additional terms appropriate to, the station in which the unit is serving, for example, " wadi," " nullah," " kotal."



i. **Features, artificial :—**

Track.	Post and rail	} fences.	Ferry.
Footpath.	Wire		Ford.
Ride.	Iron		Windmill.
Roads :—	Hurdle		Railway signals.
Tarred.	Sign post.		Church tower.
Metalled.	Pylon.		Factory.
Unmetalled.	Viaduct.		Crane.
Fenced and unfenced.	Culvert.		Gasometer.
Cross roads.	Cutting.		Gable-end.
Sunken roads.	Embankment.		Quarry.
Telegraph pole.	Canal.		Ricks.
	Lock.		Stooks.

ii. **Colours :—**

White.	Yellow.	Green.	Brown.
Black.	Blue.	Red.	

iii. **Features, natural :—**

Fir	} trees.	Copse.	Plough.
Poplar		Gorse.	Root field.
Bushy-topped		Corn field.	Stubble.
Hedgerow.			

iv. **Topographical :—**

Ridge.	Knoll.	Middle distance.
Valley.	Saddle.	Background.
Fold.	Slopes, forward.	Dead ground.
Defile.	„ reverse.	Cliff.
Crest-line.	„ concave.	Gorge.
Horizon.	„ convex.	Ravine.
Spur.	Foreground.	Clearing.
		Salient.

v. **Field Engineering :—**

Trench.	Barricade.	Right angle.
Parapet.	Dug-out.	Square.
Parados.	Defended post.	Triangle.
Fire step.	„ locality.	Circular.
Revetment.	Observation post.	Vertical.
Traverse.	Blockhouse.	Horizontal.
Breastwork.	Emplacements.	

vi. **Fire, types of :—**

Direct.	Indirect.	Flanking.	Overhead.
Frontal.	Oblique.	Enfilade.	

**LESSON 1.—THE MILITARY VOCABULARY***Instructor's Notes**Stores :—*

*Landscape targets, rifles and aiming rests.*

*While the military vocabulary is being taught, the objects to be recognized may be indicated by descriptions, or by the instructor aiming a rifle at the object and those under instruction looking along the sights. The instructor then explains to the men what they have been looking at, using the military vocabulary.*

*Instruction can be carried out on objects viewed from the vicinity of barracks in addition to the use of landscape targets. It should be continued during marching and other training.*

1. Explain the importance of using the eyes and picking up detail of ground, and the reason for a military vocabulary.
2. Point out common objects on the ground or landscape target, describing them by the military vocabulary.
3. Order recruit to describe suitable objects, using the military vocabulary.



## LESSON 2.—METHOD OF SEARCHING GROUND

### *Instructor's Notes*

#### *Stores :—*

*Two aiming rests.*

*Landscape targets (if necessary).*

*This lesson should be carried out in the open country : when this is not possible, it may be carried out using landscape targets.*

*Select an area with well defined boundaries.*

*Aiming rests may be used to test the soldier's recognition by making him aim at the targets indicated.*

*The area to be examined should not exceed 800 yards in depth.*

1. Point out the boundaries of the area, starting on the right, by giving a succession of landmarks, the fewer the better, beginning with the furthest and ending with the nearest, and explain the necessity for them, *i.e.* to limit the area in which individuals or sections are required to work or shoot.

2. Test squad to ensure that the boundaries of the area are recognized.

3. Divide the area into "foreground," "middle distance" and "background," and explain that this helps systematic searching. If the area is wide, divide it further into sectors, right, left, centre.

4. Test squad in recognition of these divisions.

5. Explain that the systematic method of searching is to examine the ground along imaginary lines from right to left, through foreground, middle distance and background, the eye travelling along one line and returning by the next so that no part of the area is omitted.

6. Practise squads in describing objects in the area by the military vocabulary.

## LESSON 3.—LOCATING SERVICE TARGETS

### *Instructor's Notes*

#### *Stores :—*

*Silhouette figure targets—Figs. 2, 3, 4 and 5.*

*Fatiguemen armed with rifles and blank S.A.A.*

*Signal flag.*

*Two assistants to move targets as required.*

*The object is to teach searching ground systematically up to a distance of 600 yards.*

*These exercises require careful preparation, and arrangements should be made only a short time beforehand, as a change of light may prevent the desired lessons being taught. In tropical countries it may be advisable that they should be rehearsed at the selected time on a previous day.*

*This lesson will be carried out at first with silhouette targets and later by employing fatiguemen instead of targets, the distance being increased as progress is made. It is, therefore, divided into three phases. In the first the targets will be placed so that they are easily located. In the second they will be placed in positions with due regard to colour, light, shade and background. The third phase will be carried out with fatiguemen.*

#### **1. Targets easy to see.—**

The targets, which should be of different colours, will be arranged against various backgrounds and present a varying degree of difficulty in location. The areas in which the targets are placed should have well-defined limits, which will be clearly described to the squad.

After a specified time the squad will be called upon to describe systematically, *i.e.* "foreground," "middle distance" and "background," positions of the targets which they have observed. The instructor will then criticize the description and explain the reasons for difference in visibility.

#### **2. Targets difficult to see.—**

This phase will be carried out as in 1 above, targets being placed in positions more difficult to locate.

#### **3. Locating fatiguemen.—**

This phase will be carried out as in 1 and 2, fatiguemen being placed in firing positions in the open and behind cover. The fatiguemen will move, fire or stand up on flag signals. The instructor will emphasize that the quick movement catches the eye and that the ear will often assist the eye in locating targets.



## LESSON 4.—STUDY OF GROUND

### *Instructor's Notes*

*The object is to teach the method of description and to note features of military importance.*

*Place squad in five positions in the open or behind cover. Insist on the use of the military vocabulary and methods of searching taught in Lesson 2.*

1. Select an area and describe it as in Lesson 2. Point out features of military importance, *e.g.* open and dead ground.

2. Make individuals point out ground and features where men could hide and move unseen, *e.g.* hedgerows, hollows, sunken roads.

3. Take squad over ground, showing them the features which they have pointed out, and discuss military value.

## SECTION 2.—RECOGNITION

### 1. Object.—

To train a man to recognize targets and to understand the exact point of aim at which his commander wishes him to fire.

### 2. Methods.—

Training will be divided into recognition of "easy" and "difficult" targets:—

i. Easy targets are those which require no aid to indication.

ii. Difficult targets are those which require the use of one or more of the following aids:—

(a) Reference point.

(b) Vertical clock ray.

(c) Use of degrees, in combination with (a) and (b) above. This aid adds time and complications and will only be used for targets which are so difficult to distinguish that they cannot be indicated by a simpler method.

### 3. Accuracy.—

Throughout all recognition, accuracy in aiming must be insisted upon.



## LESSON 5.—RECOGNITION: EASY TARGETS

### *Instructor's Notes*

#### *Stores :—*

*Aiming rest for each man.*

*Landscape targets when necessary.*

1. Point out the area, name the general direction and explain that easy targets are indicated in the most direct manner, giving a normal fire order, omitting only the number of rounds and the order *Fire*. The points of aim will be described, using :—

- i. Indication by description of any obvious target.
- ii. Indication by direction, *e.g.* slightly, quarter, half or three-quarters right, or left, from either the last target or general direction in which men are moving or facing, ending up with description of target in each case.

*Example.*—No. 1 Section—300—quarter right—large bush—AIM.

2. Practise squad. Check and discuss fire effect.

## LESSON 6.—RECOGNITION: DIFFICULT TARGETS

### *Instructor's Notes*

#### *Stores :—*

*As for Lesson 5.*

*Reference points will be described from right to left, and the names by which they are to be known will be made clear. The position of the targets in relation to the "reference point" will be indicated as in Lesson 5.*

### REFERENCE POINTS

#### 1. Explain :—

- i. That more difficult targets will be encountered and it is, therefore, necessary to learn certain "aids" to assist in making their indication and recognition easier.
- ii. That a reference point or points will always be given and that, for use with the rifle or light machine gun, the ranges to such points will also be stated. Reference points will be prominent and unmistakable objects of different kinds about 20 degrees apart and within the area selected.
- iii. That the reference point, being the basis of the indication, will invariably be named before the description of the point of aim.

*Example.*—No. 1 Section—300—**Windmill**—quarter left—bushy-topped tree.

2. Point out an area, name the general direction. Exercise squad in recognizing easy targets (Lesson 5), introducing the use of reference points. Squads aims. Check and discuss fire effect.

### VERTICAL CLOCK

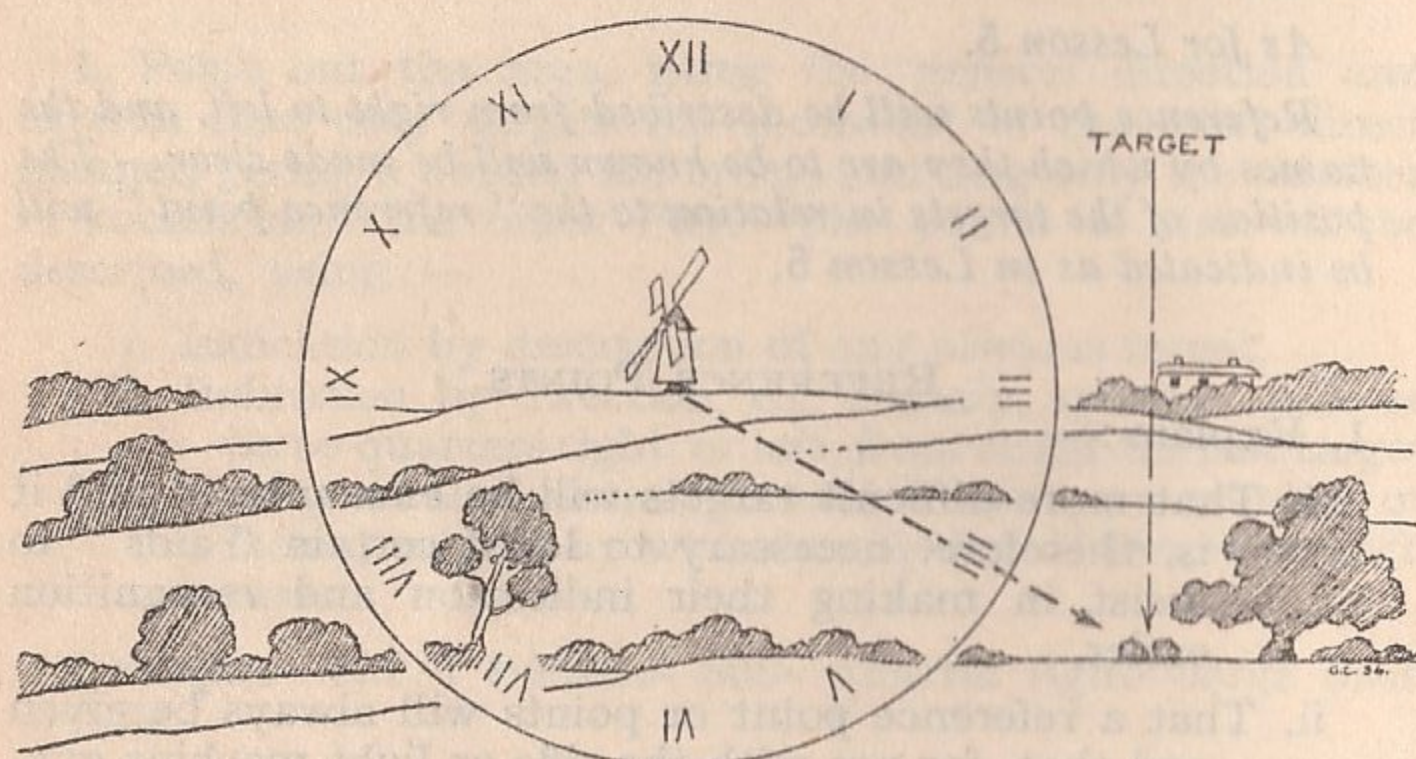
#### 3. Explain the use of the vertical clock (*see Fig. 1*).

- i. Used for giving direction from a reference point, and should only be employed where there is a good view over the ground.



- ii. The reference point is taken as the centre of a clock hanging vertically. The direction of any object is first pointed out by its position "right" or "left" of the centre, followed by the appropriate clock hour. The words "above" and "below" will not be used when reference is made to 12 o'clock and 6 o'clock.

4. Indicate targets by the vertical clock method. Squad aims. Check aims and discuss fire effect.



Example: "Windmill—Right—4 o'clock—Two bushes."

FIG. 1.

## LESSON 7.—DEGREE MEASUREMENT

### Instructor's Notes

Stores:—

*Aiming rests—landscape targets.*

*Portable degree scale.* This should be made out of a strong wooden board marked into divisions representing degrees at a distance of 10 yards. The board should be 10 feet long; this assists in measuring 10 yards by taking three times its length. It should be marked "0" at its centre point, and nine divisions of 6.3 inches marked off on either side of this point, and numbered 1 to 9 consecutively. For practical purposes this is sufficiently accurate. (For practice, a degree scale calculated for a given distance, say 20 yards, can be painted on a wall in barracks. The distance in each case will be measured from the position of the eye when in the normal aiming position.)

1. Explain the meaning of degrees and the angles subtended by the various parts of the left hand when held at arm's

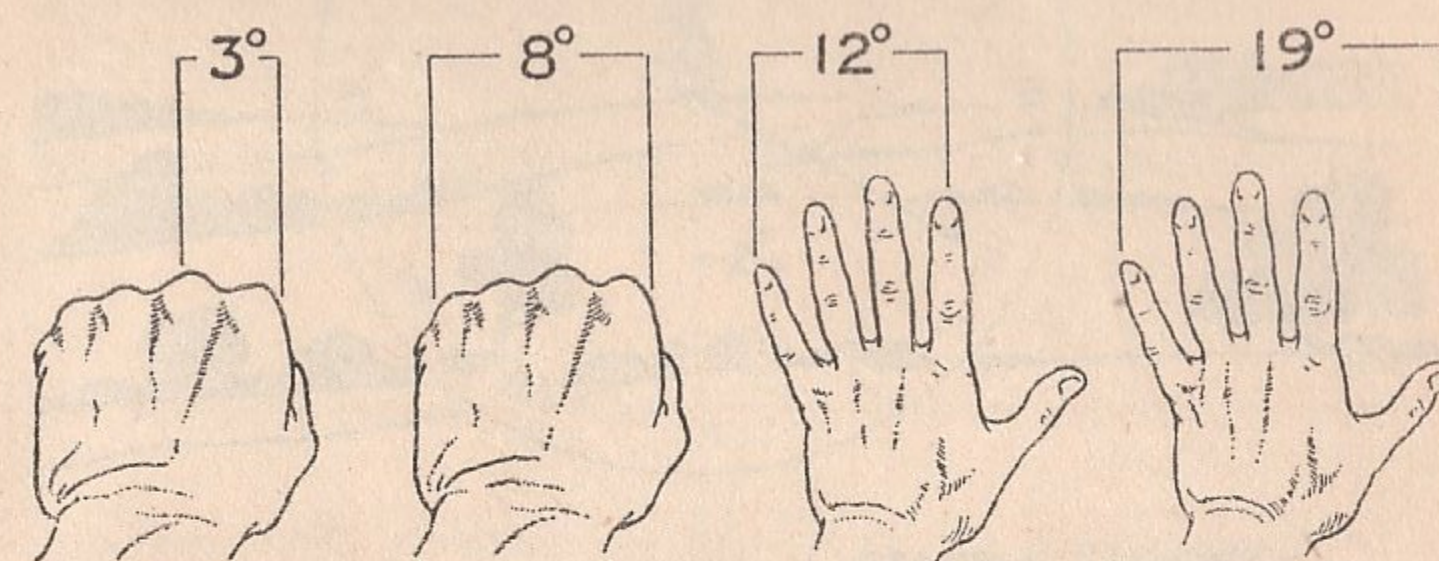


FIG. 2.

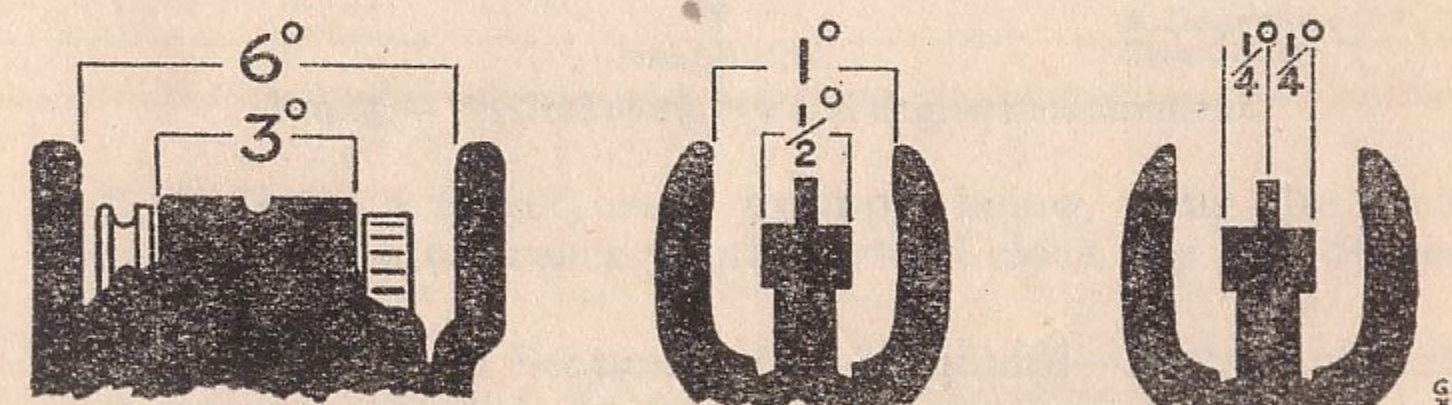


FIG. 3.

The degrees shown in the above figures are only approximate; each man must test for himself.



length and by the sights and sight protectors of the rifle when held in the aiming position.

2. Exercise squad individually, using the degree scale in measuring the angles subtended by the hand (Fig. 2), sights and sight protectors on the rifle (see Fig. 3). The angles subtended may vary slightly with each person. It is, therefore, necessary for each individual to memorize the angles as seen by him.

## LESSON 8.—COMBINATION OF REFERENCE POINT, VERTICAL CLOCK RAY AND DEGREE MEASUREMENT

### *Instructor's Notes*

*Stores :—*

*As for Lesson 5.*

1. Explain:—The combination of these aids shows the angular distance of the target from the reference point or other object in any direction. This combination of aids should only be employed when the vertical clock ray by itself would not ensure quick recognition.

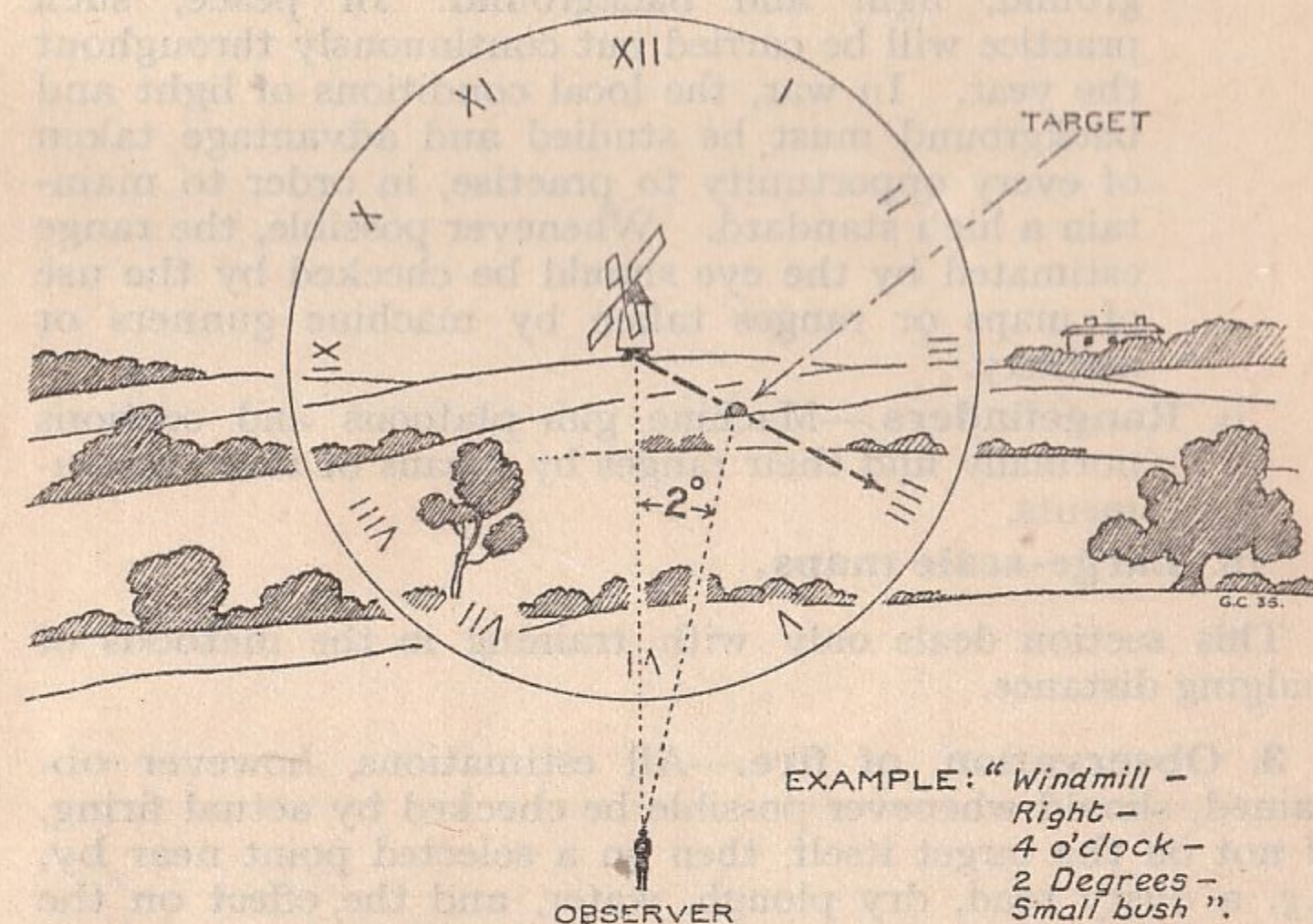


FIG. 4.—Vertical clock ray and degree measurement.

2. Indicate a target, as in example below, using the combination of the reference point, vertical clock ray and degree measurement.

*Example.*—No. 1 Section—400—Windmill—Right 4 o'clock—2 degrees—Small bush (see Fig. 4).

3. Indicate other targets by this method. Squad aims. Check aims and discuss fire effect.



### SECTION 3.—JUDGING DISTANCE

1. **Object.**—To teach the soldier to estimate the range to his target correctly so that he can fulfil his duties as an accurate shot, thereby making his fire effective and avoiding waste of ammunition.

2. **Means.**—There are three means of obtaining ranges:—

i. **Judging distance.**—The estimation of range by the eye, which is the most common means, and, therefore, all ranks will receive training in it. Skill is acquired by constant practice under varying conditions of ground, light and background. In peace, such practice will be carried out continuously throughout the year. In war, the local conditions of light and background must be studied and advantage taken of every opportunity to practise, in order to maintain a high standard. Whenever possible, the range estimated by the eye should be checked by the use of maps or ranges taken by machine gunners or artillery.

ii. **Rangefinders.**—Machine gun platoons and sections normally find their ranges by means of these instruments.

iii. **Large-scale maps.**

This section deals only with training in the methods of judging distance.

3. **Observation of fire.**—All estimations, however obtained, should whenever possible be checked by actual firing, if not on the target itself, then on a selected point near by, e.g. a dusty road, dry plough, water, and the effect on the enemy; a careful observation of the bullet strike should be made. This is called "ranging" (see Pamphlet 1).

4. **Limits for training:**—

- i. Recruits and trained soldiers will be taught to judge distances up to 800 yards.
- ii. Officers, warrant officers, N.C.Os. and selected soldiers will be taught to judge distance up to 1,000 yards.
- iii. The post-mobilization soldier will not be required to judge to a greater distance than 600 yards.

5. **Methods of training.**—Instruction will be progressive, practice being given in the two methods—

The unit of measure—(Lesson 9),

The appearance—(Lesson 10),

until a satisfactory standard of judging, by the general impression conveyed to the eye, is reached.

Subsequently, aids to judging distance (Lesson 11) will be taught.

All ranks will be trained to judge from behind cover or when lying in the open.

6. **Judging distance test.**—The standard of efficiency required is given in the conditions of the test, which will be carried out in strict accordance with the instructions.



## LESSON 9.—UNIT OF MEASURE

### *Instructor's Notes*

#### *Stores :—*

Four flags placed in position 100 yards from a central point in different directions. Flags will be placed so that recruit has to look up-hill and down-hill, across open ground, etc.

Signal flag. 100-yard measuring tape. Small flags. Fatiguemen.

Distances will be accurately measured in preparing this lesson.

To emphasize the unit of measure, each 100 yards between the squad and the object flag will be marked by small flags previously laid on the ground and invisible to those under instruction. The soldier, having estimated the distance, will be questioned as to how he has fitted in the number of "units." The small flags will then be put up and the difficulty of fitting in "units" as the distance increases pointed out. Emphasize the following limitations :—

The method cannot be employed for distances beyond 400 yards or when the ground between the observer and the object to be judged on is not visible.

#### 1. Explain :—

- i. The main points of Sec. 3, paras. 1 and 2 (i).
- ii. The *unit of measure*.—A method of measuring distance in terms of some familiar unit, i.e. 100 yards.

2. Direct squad to look at the flags in position, kneeling and lying, and memorize the distance of 100 yards.

3. Order men to place themselves independently at what they judge to be 100 yards from a named object. Pace or measure 100 yards from it, and show men the correct distance and the amount of their error.

4. Practise squad in judging distance to flags placed anywhere up to 400 yards from their position.

## LESSON 10.—THE APPEARANCE METHOD

### *Instructor's Notes*

#### *Stores :—*

Signal flag.

This lesson can, with advantage, be carried out on a classification range, using the firing point distances. If this is not possible, distances to be judged must be measured accurately.

Six fatiguemen with rifles are required and must be rehearsed.

1. Explain that the detailed appearance of men in different service positions and of objects of known size will be studied and noted at various distances, and under varying conditions of light and background. This is another method of judging distance and one which is both simple and quick, being best suited to service conditions.

2. Signal fatiguemen to appear in turn at distances from 200 to 600 yards, lying, kneeling and standing at each distance.

Order men to observe the appearance of fatiguemen at the various distances and in the various positions, and show by demonstrations of the fatiguemen the following guide :—

At 200 yards—all parts of body distinctly seen.

At 300 yards—outline of face becomes blurred.

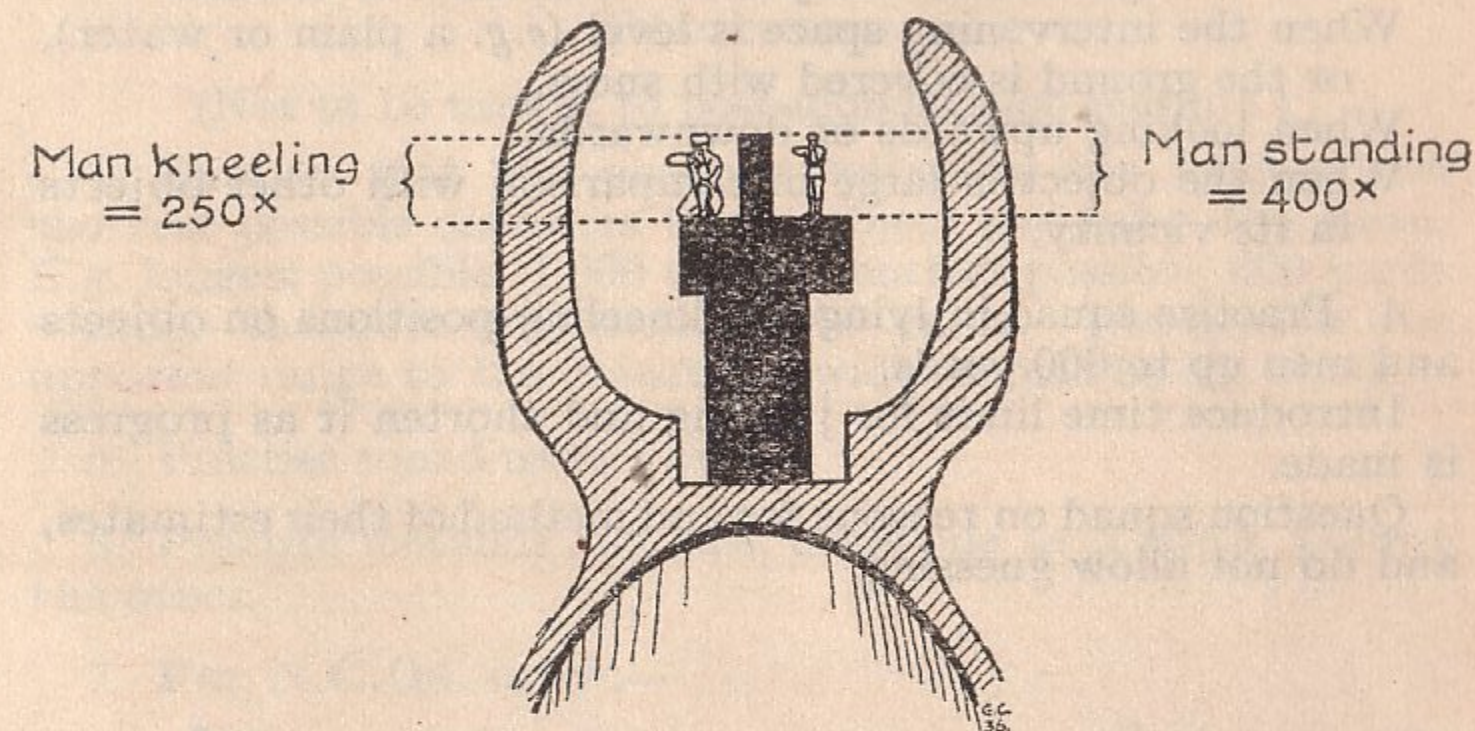


FIG. 5.

At 400 yards—outline of body remains, but face cannot be seen except in favourable circumstances.

At 500 yards—body appears to taper slightly from the shoulders. Movements of limbs are still discernible.



At 600 yards—head appears as a dot, details not being discernible; body tapers noticeably.

At 250 yards and 400 yards—the blade of the foresight of the Rifle No. 1, Mark III (S.M.L.E. .303-inch), covers a man respectively kneeling and standing (*see* Fig. 5, p. 21).

3. Explain that varying conditions of light, background, size of object and surroundings have the effect of making the object look nearer or further away. In the circumstances there will be a tendency to under or over estimate; the judger must consider the conditions. The object will look further away—

When the sun is shining behind the object.

When kneeling or lying.

When background and object are similar in colour.

When looking across a valley, over undulating ground, in dull or foggy weather.

Over broken ground.

When the object is small in comparison with other objects in its vicinity.

When the line of sight to an object is confined within narrow limits, such as an avenue of trees or a "ride" in a wood.

The object will look nearer—

When the sun is shining behind the observer.

In bright light or clear atmosphere.

When background and object are different in colour.

When the intervening space is level (*e.g.* a plain or water), or the ground is covered with snow.

When looking upwards or downwards.

When the object is large in comparison with other objects in its vicinity.

4. Practise squad in lying and kneeling positions on objects and men up to 600 yards.

Introduce time limit for judging and shorten it as progress is made.

Question squad on reasons for and method of their estimates, and do not allow guessing.

## LESSON 11.—AIDS TO JUDGING DISTANCE

(Halving, Bracketing, Unit Average, Key Range.)

### *Instructor's Notes*

*Obtain accurate ranges to a number of objects and positions visible from the place selected for the lesson, between 400 yards and 800 yards away. Site fatiguemen with rifles and blank in the desired positions.*

1. Explain:—In addition to the two methods of judging distance already taught, certain aids are necessary.

### HALVING

2. Explain that the observer estimates, either by the appearance or unit of measure method, the distance to a point which he considers halfway to the object and doubles it.

3. Practise squad in using this aid on objects and fatiguemen, and question on method used, whether appearance or unit of measure.

### BRACKETING

(Not to be taught to post-mobilization recruits.)

4. Explain that the observer estimates the longest and shortest possible distances to the object and takes the mean. *E.g.* longest possible, 1,000 yards; shortest possible, 600 yards—range therefore estimated as 800 yards. The greater the apparent range to the object, the wider should be the bracket.

5. Practise squad as in 2 above.

6. Practise methods and aids, using one as a check against the other.

7. For N.C.Os. only:—

i. **Unit average.**—Section commander calls for an estimate from each man and takes the mean.

ii. **Key range.**—Where a range to an object is known by means of a rangefinder or large-scale map, other objects may be judged by estimating their distance from the known point.



## LESSON 12.—RANGE CARDS

(For N.C.Os. and selected men only.)

### Instructor's Notes

Stores:—

Range cards and pencils for each man.

1. Explain that in defence all ranges obtained should be recorded on a range card. The range card is an article of store and will be carried in the field. The card is marked with four equi-distant semi-circles which can be used to represent any series of ranges up to 2,000 yards, according to whether they are for use by a rifle, light machine gun or machine gun fire unit.

2. Explain and demonstrate the successive steps in filling in a range card:—

- i. Mark off on the card the position from which the ranges are taken. Describe this position accurately.

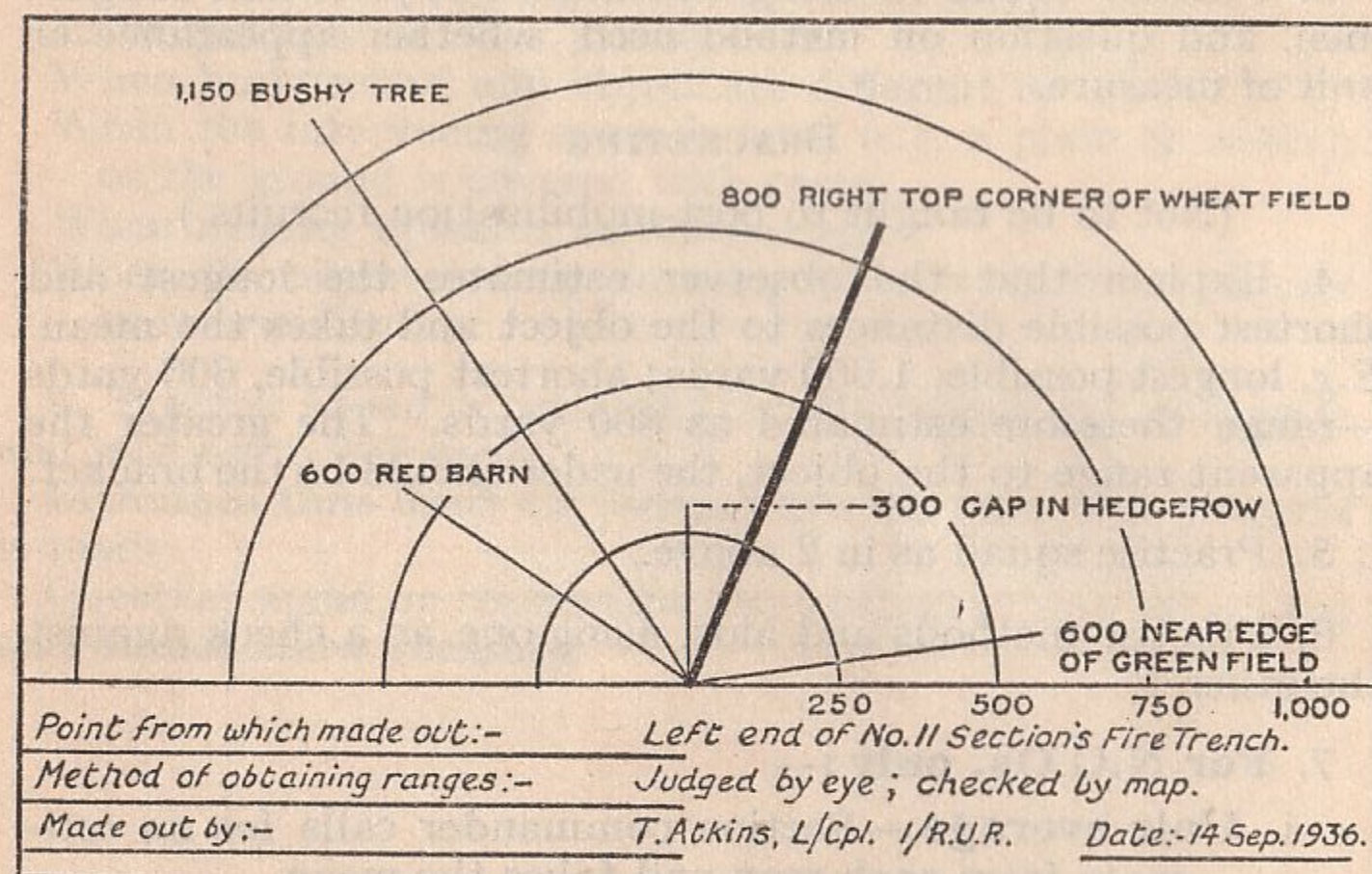


FIG. 6.—Ranges suitable for a rifle or light machine gun section.

- ii. Select an unmistakable object in the arc or sector allotted, and draw a thick setting ray to it.

- iii. Select objects to which ranges are to be recorded; these should include positions which the enemy may have to occupy or near which he is likely to pass; obstacles, a gap in a hedge, etc. Put in range to be represented by each semi-circle on the card.
- iv. Keeping the card on the setting ray, draw rays to show the direction of the objects selected. The rays to be in lengths corresponding to the distances.
- v. Write short descriptions of each object as it appears to the naked eye. These should be written in block letters (see Fig. 6).
- vi. Write range to each object against the description.
- vii. Sign and date the card, and state how the ranges were obtained.

In use, the range card is set by raising the card to the level of the eye, and directing the setting ray on the object named. Once the card is set, objects ranged on can be identified at once by any observer.

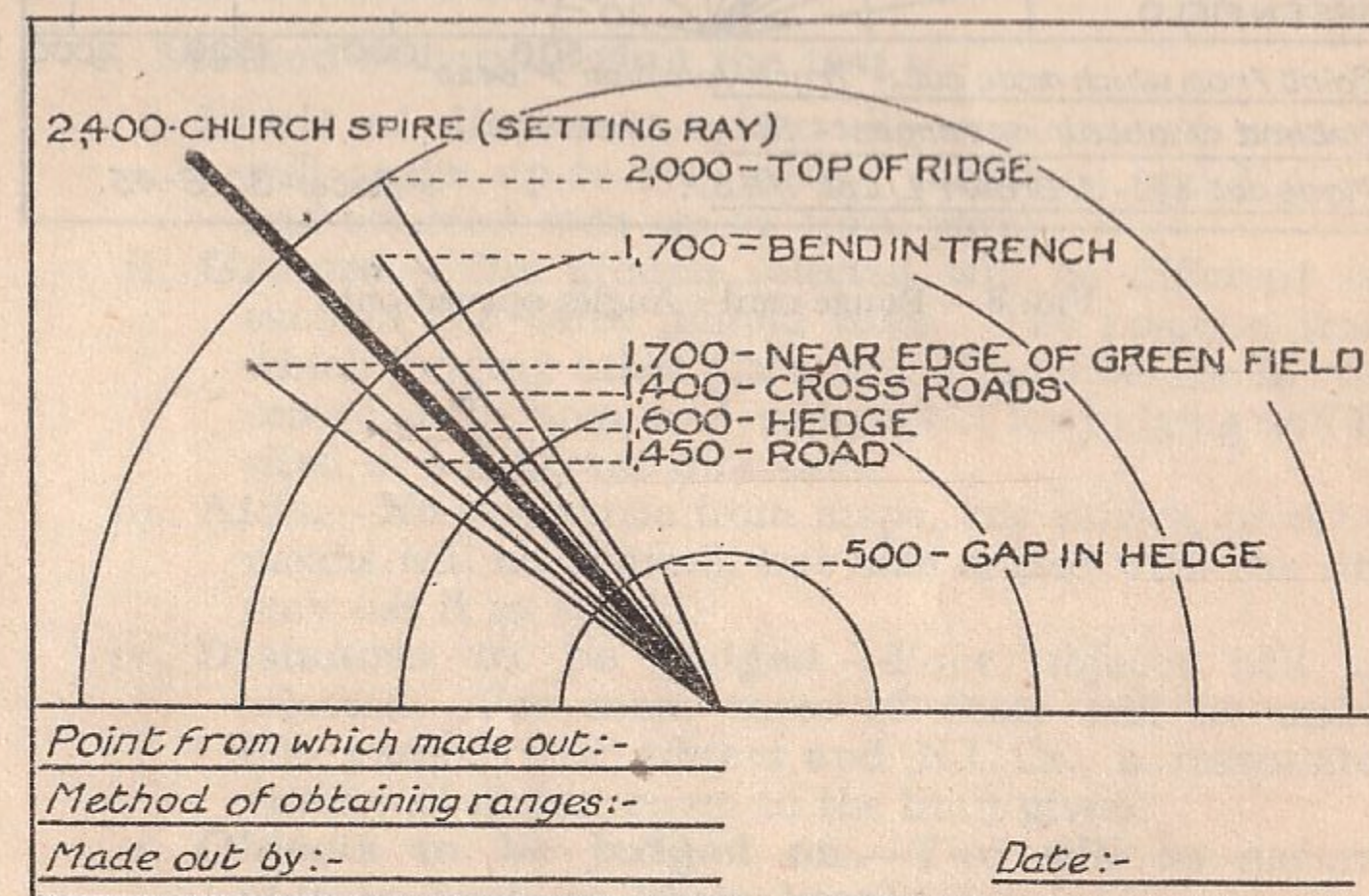


FIG. 7.—Range card—True angles.

3. Practise squad in the preparation of a range card.

4. (For M.G. units.) Explain:—When lines drawn at correct angles would be so close to one another that the range card could not be easily read (Fig. 7), the card should be



prepared with the angles opened out, and the number of degrees right or left of the setting ray written against each ray (Fig. 8).

5. Practise squad in preparation of a range card with angles opened out.

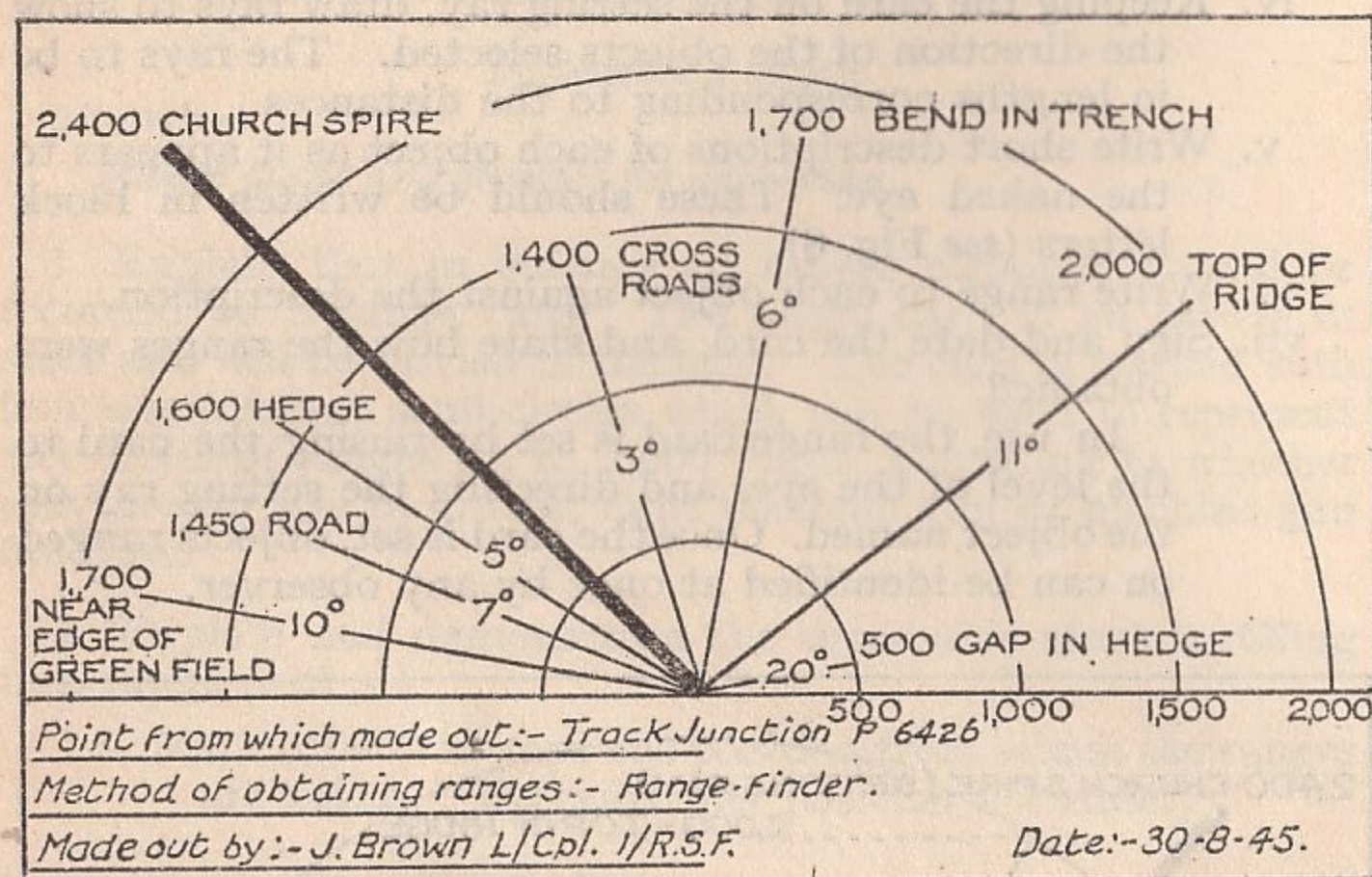


FIG. 8.—Range card—Angles opened out.

## JUDGING DISTANCE TEST

1. **Introduction.**—Personnel of all cavalry, R.E. field units and infantry will be tested three times during the weapon training year in judging distance. At least one month should be allowed to elapse between tests.

2. Records of results of tests carried out during the current weapon training year will accompany the documents of a soldier transferred to another unit or sub-unit.

3. Recruits will carry out one test at the depot, where facilities exist, and the remainder after joining their units, unless they arrive in the last two months of the weapon training year, when they will be excused the remaining two tests.

### 4. Method of conducting the test:—

i. **Limit of distances.**—Recruits and trained soldiers will judge up to 800 yards; subaltern and N.C.Os. and selected men up to 1,000 yards.

ii. **Ground.**—The ground selected will be different for each of the three annual tests. The position from which judging takes place will, if possible, be in the centre of the area, and each object for judging will be sited in a different direction.

iii. **Aids.**—No assistance from maps, key ranges, or other means will be allowed, but men armed with the rifle may use it as an aid.

iv. **Distances to be judged.**—Four objects will be selected. For men, three of these will be under 600 yards. For officers and N.C.Os., a reasonable variety of distances up to the limit given.

v. **Objects to be judged on.**—Two will be natural objects, such as likely hostile fire positions. Two will be men who, on a given signal from the judging position, will show themselves. To ensure that the men are observed, two men should be employed. One of these men will fire three rounds of blank ammunition at a slow rate of fire, while the other will wave a flag until the third round of blank has been fired, when he should stand at the order while the distance is being judged.



vi. **Estimates, how given.**—Always in multiples of 50 yards. Officers and other ranks not armed with the rifle write down their estimates, others adjust their sights to the estimated distance.

vii. **Position for all those under test will be lying or kneeling.**

viii. **Time limits and procedure.**—Half a minute will be allowed for each estimate. The time will be taken as follows:—

For natural objects.—From the moment the officer conducting the test is satisfied that his indication of the object has been sufficiently clear to ensure recognition by those under test.

For men.—From the sound of the third shot, or, if that is inaudible, from the moment the flag is lowered.

At the conclusion of the time limits, a whistle will be blown, whereupon those judging distance will stand to attention, each individual remaining in this position until the register keeper is ready to record his estimate. No adjustment of sights or writing after the whistle sounds will be permitted. If any of those under test have failed to recognize any object, they will be recorded as having failed for that object.

ix. The register keepers will go to each individual in turn and examine the sights of the rifle (or the written estimate) and will record the estimates as shown on the sights (or written down) in the register (A.F. B 186). No other entry whatsoever will be recorded on the A.F. B 186 until after the conclusion of the test, when A.Fs. B 186 will be handed to the superintending officer, who will himself fill in (in ink) the correct distance and permissible error, the error—if any—made by the individual, and his qualification. The register will then be signed by the superintending officer. Registers will be preserved for record.

x. At the conclusion of the last of the four distances, the officer conducting the test will announce the correct distances and, in doing so, he will comment on the conditions of light, shade, background, etc. The object of this is to enable each individual to make notes on his personal record sheet in his Army Book 142 (A., B. or T.), which will assist in his ascertaining why certain distances may have been over or under estimated.

## 5. Standard of efficiency.—

i. The permissible errors are:—

For distances from 200 yds. to	300 yds...	50 yds.
" " " 350 "	700 "	100 "
" " " 750 "	1,000 "	150 "

In order to pass, three distances must be judged within the permissible error.

ii. Personnel who are tested will either "Qualify" or "Fail." To "Qualify" it will be necessary to pass two out of the three tests held annually. An individual who does not attend any test will be graded as "Not Exercised."

6. **Exemptions from judging distance tests.**—These will be the same as the total exemptions from annual range courses.

All individuals other than those exempted from judging distance tests will be classified as in paragraph 5, ii. above.

7. In the annual weapon training returns of units, the results of the tests will be shown as follows:—

Qualified	..	..	..	..	..	..
Failed	..	..	..	..	..	..
Not exercised	..	..	..	..	..	..
Total (total numbers who should be exercised)						



## SECTION 4.—FIRE CONTROL ORDERS

1. In visual training and recognition the lessons have been framed chiefly for the benefit of the man in the ranks, but, however skilful he may have become, fire effect will not be obtained unless the fire unit leader can give a correct fire order. The objects of the lessons in this section are therefore :—

- i. To practise the fire unit leader in indicating targets and framing fire orders ;
- ii. To provide at the same time instruction for the man in recognition.

2. Training starts with simple fire control orders, progressing to problems including imaginary battle situations. Lessons, whenever possible, will be carried out on suitable ground in the vicinity of barracks : when this is not available, use must be made of landscape targets.

The N.C.O. and man must have constant practice throughout their service in giving and acting upon fire control orders.

3. A valuable means of testing the N.C.O. in indication and the soldier in recognition is afforded by the use of harmonized sights with landscape targets on the miniature or 30-yard range (*see Pamphlet No. 1*). Useful practice may also be carried out on the field firing range, where it may be possible to obtain observation of fire. Tracer is a useful means of demonstrating the application of fire and of checking recognition.

## LESSON 13.—FIRE CONTROL

Précis of Lecture to Fire Unit Leaders only.

### 1. Meaning of terms.—

**Fire direction.**—The platoon commander's orders to fire unit leaders, dealing with the application of fire according to the fire plan made by the battalion and company commander.

**Fire control orders.**—Orders given by a fire unit leader to his men.

2. **Fire control.**—Refer briefly to paragraphs 1, 2 and 3, page 30.

### 3. Considerations in opening fire.—

Fire unit leaders must look for chances of shooting the enemy, but must remember the following points :—

- i. Is fire justified by the range, visibility and vulnerability of the target and the possibilities of surprise ?
- ii. What is the best weapon or combination of weapons to use, rifle, light machine gun, grenade ?
- iii. Is rapid or slow fire required ? This depends on the type of target and ammunition available.

### 4. Fire control orders.—

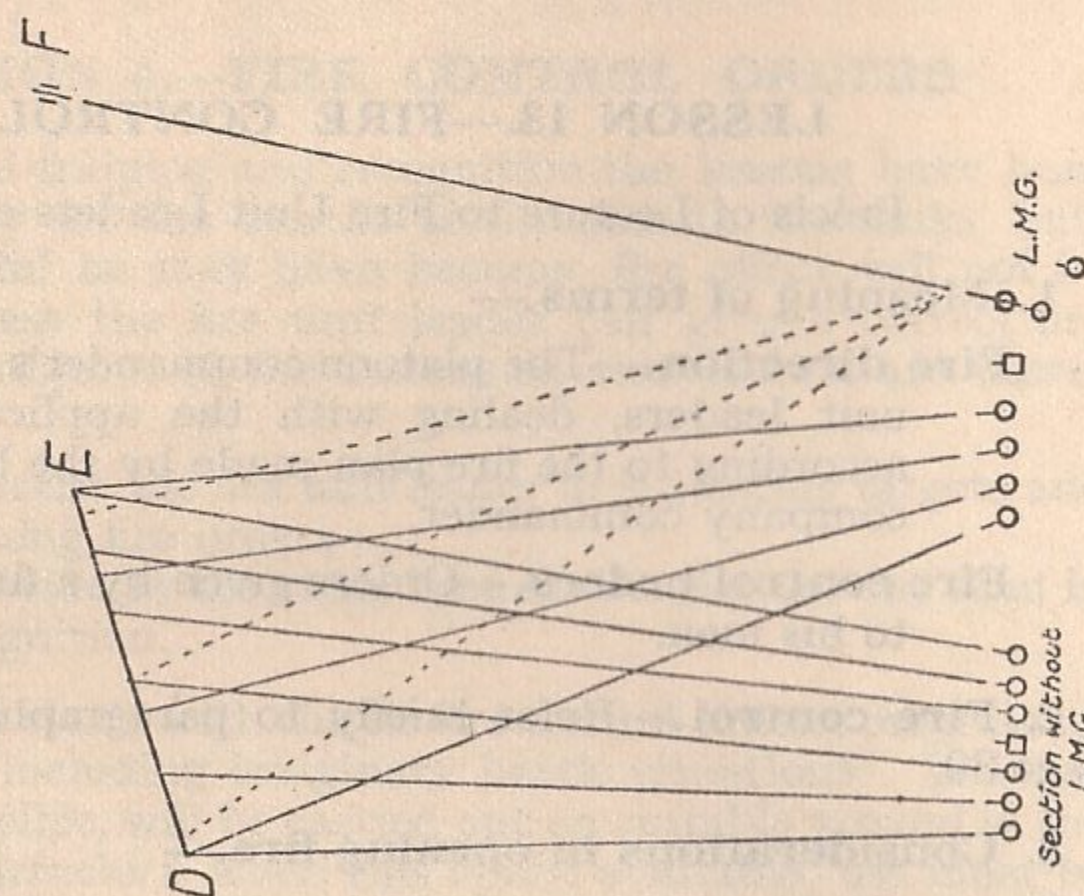
Good indication of targets essential, and constant practice necessary under realistic conditions. Orders brief and clear, and aids only used when unavoidable. Orders given calmly, loudly, concisely, with pauses between parts to allow them to be understood and acted on.

*Examples.*—After ordering the range, allow time for sight setting. After "Rapid," pause for rifles to be brought to the aim. To attract attention over the noise of battle, whistle should be used. Give corrections for range by "Up . . . Hundred" "Down . . . Hundred."

5. **Concentrated and distributed fire.**—Targets with little width engaged by concentrated fire ; wide targets by distributed fire. A useful guide : if the width of the target is more than  $\frac{1}{2}$  degree, fire should be distributed ; targets under this width are covered by the cone of fire. Explain method

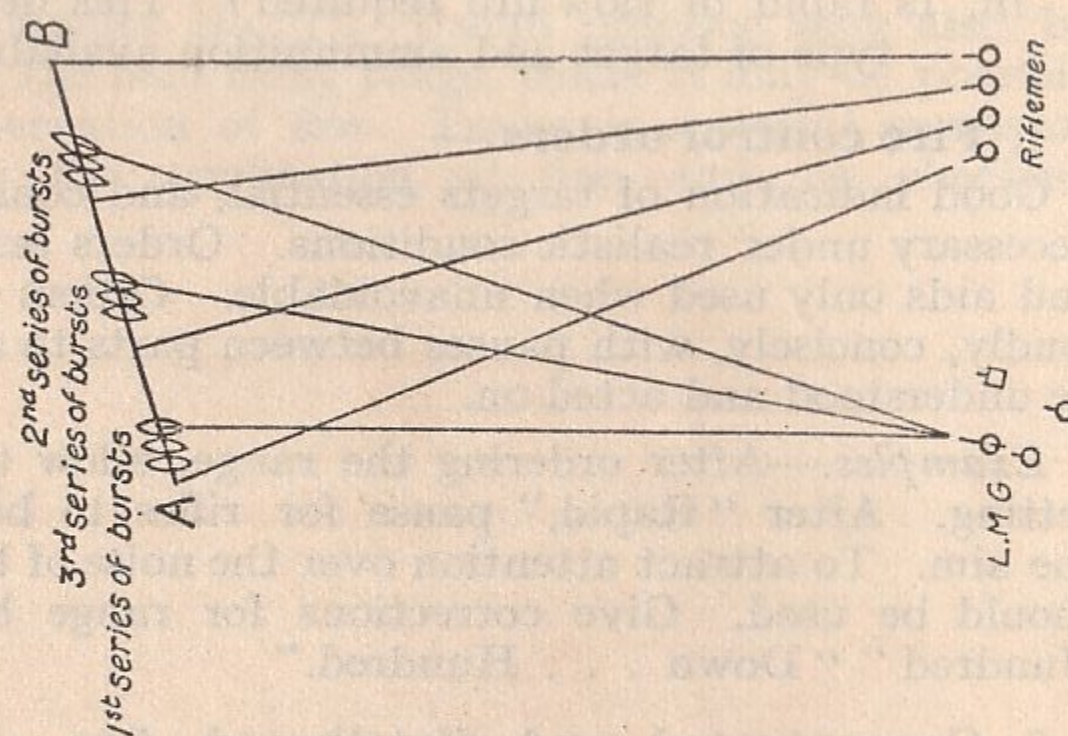


Two sections, one with L.M.G. showing how fire can be switched while the target remains covered by fire.



$D-E$  = Limits indicated.  $F$  = Enemy engaged by L.M.G.

A section with L.M.G. where gun and rifles are both in action.



$A-B$  = Limits indicated by Fire Unit Leader.

FIG. 9.—System of fire distribution.

of distribution of fire as taught in Lesson 15, and advantages of it, which are :—

- i. It ensures that the fire of each section is distributed over the whole of the target.
- ii. It allows any section commander to switch his fire against any other target that the situation may demand, whilst the whole of the original target remains under fire.
- iii. It allows the movement of one section or part of it taking place while fire is still applied to the whole target by its gun or other sections.

#### 6. Method of teaching fire control.—

In the open, areas pointed out and simple tactical situation explained. Reference points and their ranges settled. Before each problem, the N.C.O. under instruction must be told whether he is commanding a rifle section or one armed with a light machine gun.

Three methods of setting problems are :—

- i. The instructor has two rifles placed in aiming rests and uses either one or both as required, *e.g.* one when it is intended to indicate a target for a concentrated order and both for a distributed fire order, one rifle being aimed at each end of the target. Having thus indicated the target, he orders one of the N.C.Os. under instruction to look along the sights and to give a fire order on to the target thus indicated, to the remainder of those under instruction, who will lay aims, using aiming rests, on what they consider to be the target. The instructor looks along each rifle, insisting on accuracy of aim.
- ii. Concealed men are called up individually, and fire blank; meanwhile the squad, except the commander, is turned about. The men again conceal themselves; the squad is turned about. The commander gives his fire control order; the squad adjusts sights, and each man lays his rifle from his rest on the point at which he would have fired. The men are again called up; aims and sights are checked.
- iii. By the use of men carrying flags or dummy screens, problems in fire control can be set requiring all types of fire orders. These men will be placed to represent various situations, one man being sufficient to indicate a situation calling for concentrated fire, two to mark the limits of a linear target. Two men may sometimes be used to represent scouts for a situation



requiring an anticipatory fire order or a snapshooting order. By prearranged signal the instructor will call up the required situation, when the men with flags will fire a few rounds of blank and show themselves. After a suitable interval they will disappear on a given signal and the squad will be told to give their fire orders.

Careful rehearsal of fatiguemen is necessary.

After each problem, fire control orders will be discussed (see paragraph 7, below).

Effect of wind must not be forgotten. If practice takes place on a calm day, some problems should include imaginary fresh right or left winds.

#### 7. Method of discussing fire control orders.—

Full value of problems only obtained by checking aims and discussing probable fire effect. When little or no fire effect is obtained, the fire control order must be analysed as follows:—

Was it given as an order in correct sequence?

Was it suitable to the nature of the target?

Was the range approximately correct?

Was the indication clear and concise?

Was it necessary to use "aids"?

Was the rate of fire suitable?

Was the effect of wind considered by the firer?

#### 8. Fire control at night, in fog or mist.—

At night, fire control will be limited to brief commands, e.g. "Fire," "Rapid Fire," "Stop." The material effect may not be considerable, except against an enemy in movement, but the moral effect will be great.

The greatest effect will be produced by foreseeing likely enemy lines of approach and by arranging to sweep these with fire. The light machine gun can be mounted on its tripod and fired on "fixed lines" (see light machine gun, Lesson 19) to cover such approaches.

## LESSON 14.—NORMAL FIRE CONTROL ORDERS (CONCENTRATED)

### *Instructor's Notes*

#### *Stores:—*

*Aiming rests.*

*Landscape targets (if necessary).*

*Fatiguemen with rifles and S.A.A. blank.*

*Signal flags.*

#### *Explain:—*

#### 1. Fire control orders.—

The orders given by the fire unit leader to his men so that they may recognize the target and fire accurately at it. That it is the duty of the individual firer to consider the effect of wind and allow for it (see Pamphlet No. 3, Lesson 11).

#### 2. Concentrated fire.—

Implies that every man of the section directs his fire to the same point. When a large target is engaged, a definite point of aim will be given, e.g. right or left end, top corner. In the case of small targets where no point of aim is given, aim will be directed at the centre.

#### 3. Types of fire orders.—

For ground targets there are four kinds of fire orders, each of which will be taught and practised in Lessons 14, 15 and 16:—

i. Normal.

ii. Brief.

iii. Anticipatory.

iv. Snapshooting.

#### 4. A normal fire control order.—

Sequence	Reasons	Order
(1)	(2)	(3)
Designation of unit..	To make it clear to whom the order is addressed.	"No. 5 Section."
Range .. ..	To concentrate in recognizing the target once the sights are set and to limit the area in which to search for target.	"Five hundred."



Sequence	Reasons	Order
(1) Indication .. ..	(2) Direction and description of point of aim.	(3) "Quarter left—Gateway"—"Slightly right—Small bush." "Five rounds."
Number of rounds ..	To control ammunition expenditure and to ensure a lull in the firing for fresh orders if necessary.	
Kind of fire .. ..	Dependent on the target and situation at the time.	"Fire" or "Rapid Fire."

5. Practise squad. Check aim, discuss fire effect.

## LESSON 15.—NORMAL FIRE CONTROL ORDERS (DISTRIBUTED RIFLE AND LIGHT MACHINE GUN)

*Instructor's Notes*

*As for Lesson 14*

Explain :—

### 1. Distributed fire.—

It may be necessary to engage a wide target, such as a hedgerow, from one end to the other. This requires the fire of the section to be distributed. The limits of the target are pointed out, and the fire order is obeyed :—

*By riflemen firing at the approximate points between these limits corresponding with their places in the section.*

*By the light machine gunner distributing his fire by repetition or in bursts at irregular intervals between the limits of the target and avoiding systematic traversing.*

### 2. Sequence.—

Sequence as in Lesson 14. The extent of the target will be indicated immediately after one end of it has been named.

*Example.*—"No. 1 Section—300—Windmill—right 4 o'clock—BUSH—from BUSH to Left—LONE TREE—FIVE ROUNDS—FIRE."

3. Practise squad, check aims, discuss fire effect.

Explain :—

### 4. Degree method to indicate width of target (see Fig. 10).—

The width of a target can also be indicated by using degree measurements taught in Lessons 7 and 8.

*Example.*—"No. 1 Section—300—Windmill—Right—4 o'clock—Small bush—from small bush—Left along hedgerow—to a point 4 degrees—Five Rounds—Fire."

5. Practise squad. Check aims. Discuss fire effect.

### 6. Light machine gun fire control orders.—

Explain :—

*A fire control order for a section armed with a light machine gun.*

i. A section so armed may engage targets with :—

COMPLETE SECTION,  
GUN ONLY,  
RIFLEMEN ONLY.



- ii. When the "complete section" is to fire, the order will be on the following lines:—

No. 1 Section—500—Tree—slightly right—bush—5 rounds (bursts)—Fire.

If "rounds" are ordered, the No. 1 fires the named number of rounds at the normal rifle rate, using repetition.

If "bursts," the No. 1 fires the named number, using automatic.

In either case riflemen fire the named number, using normal rate.

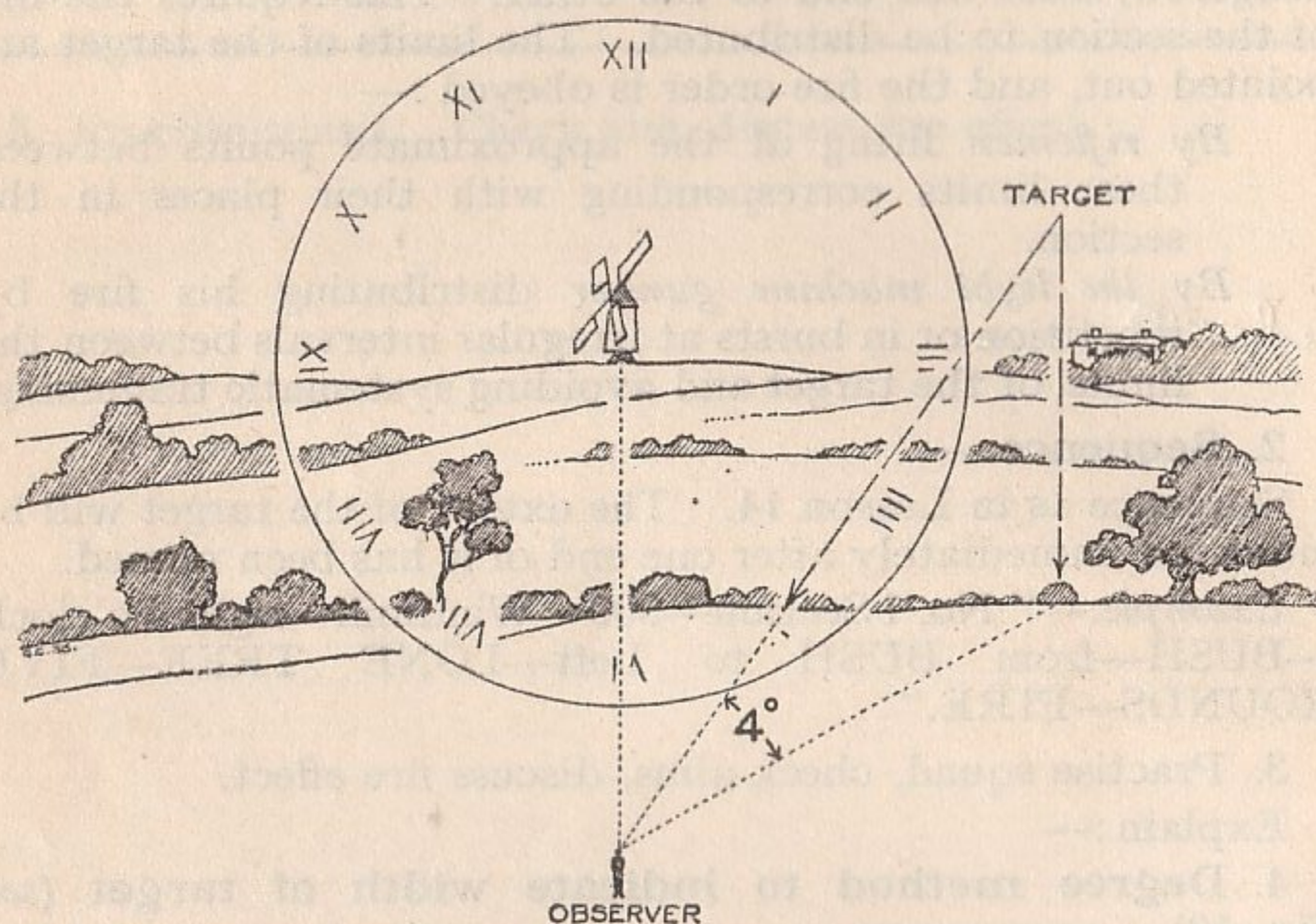


FIG. 10.—Degree measurements.

If rapid fire is required, the number of rounds will not be named, both gun (automatic) and riflemen will fire at the rapid rate, controlled by "Stop" and "Go on."

- iii. When "gun only" is ordered, automatic fire will normally be employed on the following lines:—

No. 1 Section—GUN ONLY—750—Windmill—left 10 o'clock—Gap in hedgerow—5 bursts—Fire.

When "rapid" fire is required, bursts will not be ordered but fire will be controlled by "Stop" and "Go on."

- iv. If it is desired to use "repetition" to simulate the presence of a rifle section and to conceal the existence of a light machine gun (*e.g.* when gun is acting apart from its section) instructions to that effect will be given to No. 1.

- v. When "riflemen only" are employed, the fire order will be as follows:—

No. 1 Section—RIFLEMEN ONLY—600—Half Right—Bush—5 rounds—Fire or Rapid Fire.

7. Practise squad, check aims, discuss fire effect.



## LESSON 16.—BRIEF, ANTICIPATORY AND SNAP-SHOOTING FIRE ORDERS

*Instructor's Notes*

*As for Lesson 14*

Explain :—

1. **Brief fire control orders** are used when the target is an obvious one, and when time does not admit of a full fire control order being given, *e.g.* "Sights down—Quarter left—Rapid Fire," or "300—Half Right—Rapid Fire."

2. Practise squad.

Explain :—

3. **Anticipatory fire control orders** are used both in attack and defence, anticipating either the movements of our own troops or those of the enemy.

Examples :—

Attack.—"No. 5 Section—400—Farm House—Immediately below—Hedgerow. No. 6 Section is moving up that covered approach on our right. We must cover their advance while they cross that bit of open ground. Open rapid fire on my order."

Defence.—"No. 3 Section—500—Quarter Right—Small Wood. When the enemy comes out into the open, open rapid fire on my order."

From the above it will be seen that all preparations for opening fire have been made, but the actual opening of fire is withheld until it is required, up to which time care must be taken to avoid undue exposure.

4. Practise squad.

Explain :—

5. **Snapshooting.**—

The order is designed so that the individual soldier can take a snapshot as opportunity occurs. It will only be used at close ranges. The whole area will be watched and targets engaged as in distributed fire.

Example.—"No. 3 Section—300—Slightly left—Farm buildings—Enemy in that area—Fire when you see a target."

6. Practise squad.





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